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3   Excerpt from HAI Inputs Portfolio, Page 33

4   **2.6.1. Distribution Cable Sizing Factors**

5   **Definition:** The factor by which distribution cable is increased above the size needed to serve a given
6   quantity of demand in order to provide spare pairs for breakage, line administration, and some amount of
7   growth. HM 5.0a divides the number of pairs needed in a distribution cable to meet existing demand by
8   this factor to determine the minimum number of pairs required, then uses the next larger available size
9   cable.
10
11   **Default Values:**

Distribution Cable Sizing Factors	
Density Zone	Factors
0-5	.50
5-100	.55
100-200	.55
200-650	.60
650-850	.65
850-2,550	.70
2,550-5,000	.75
5,000-10,000	.75
10,000+	.75

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13   **Support:** In determining appropriate cable size, an outside plant engineer is more interested in a sufficient
14   number of administrative spares than in the percent-sizing ratio. The appropriate distribution cable sizing
15   factor, therefore, will vary depending upon the size of cable. For example, 75% utilization in a 2400 pair
16   cable provides 600 spares. However, 50% utilization in a 6 pair cable provides only 3 spares. Since
17   smaller cables are used in lower density zones, Distribution Cable Sizing Factors in HM 5.0a are lower in
18   the lowest density zones to account for this effect.

19   In general, the level of spare capacity provided by default values in HM 5.0a is sufficient to meet current
20   demand plus some amount of growth. Because the model calculates the unit loop investment cost as the
21   total loop investment (including spare capacity), divided by the current loop demand, the resulting unit
22   costs are a conservatively high estimate of the economic cost of meeting current loop demand. This occurs
23   because, in reality, some of the spare distribution plant can and will be used to satisfy additional loop
24   demand in the future, without causing any additional investment cost, thus a larger number of customers
25   will pay for the cable over time. In this sense, the HM 5.0a default values for the distribution cable sizing
26   factors are conservatively low from an economic costing standpoint.